

World-First Graphene Membrane Face Mask That Kills COVID-19

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Nanomatrix Materials has developed a new face mask that uses a graphene-silver composite layer to destroy microbes and viruses. The mask may be invaluable in preventing the spread of COVID-19 and other airborne bacteria and viruses. The mask absorbs harmful volatile organic compounds (VOCs).

Airborne Transmission Main Route to Contracting SARS-CoV-2

One main route to the transmission of the SARS-CoV-2 virus is via droplets/aerosols expelled in the breath of infected persons. The spread of the virus, which is the cause of the global COVID-19 pandemic, can, therefore, be prevented by wearing masks. Studies have shown that surgical and N95 masks, as well as more basic cotton masks, all have a protective effect at preventing transmission of infective droplets/aerosols of the SARS-CoV-2 virus. However, data has revealed that no mask is completely efficient at blocking infective droplets/aerosols from spreading from an infected person, even when they are sealed.

While a number of preventive methods have emerged over the course of the pandemic, mainly the use of masks, disinfection of surfaces (particularly those deemed “high contact”), and social distancing, evidence has revealed that it is airborne transmission, rather than surface transmission that is more significant in spreading the virus.

At the beginning of the pandemic, scientists had advised that the virus could be transmitted via breathing in air containing infected droplets, surface transmission, and, of course, close physical contact with a person infected with the virus, more recent data has shown that surface transmission is not the main way the virus spreads. In May, the US Centers for Disease Control and Prevention (CDC) updated its guidance on surface transmission, stating that it is “not thought to be the main way the virus spreads”.

Following these significant findings, it has become clear that preventing the transmission of the airborne virus is key to tackling the pandemic. However, while the use of masks has been enforced in many key areas, the efficacy even of the best masks is limited.

To address this, [Nanomatrix Materials](#), a Jaipur-based startup that specializes in the research and design of graphene, launched the world's first face masks made with a graphene-silver composite that not only prevents the spread of SARS-CoV-2 but could potentially kill it.

New Mask Kills Bacteria and Viruses

The graphene membrane face mask, known as 'G1 Wonder', has been created with a graphene-silver composite membrane that destroys 99% of microbes and viruses.

The invention was tested at government-approved laboratories to meet the ISO 18184 standard. The results of these laboratory tests revealed that the graphene-silver composite membrane, made from a collection of microscopic razor-sharp blades all with electric charges has the power to tear open the cells of bacteria and viruses, destroying them. In just seconds, Nanomatrix Materials' graphene membrane face mask can effectively destroy 99% of microbes and viruses that it is in contact with. The innovative mask, therefore, has the potential to prevent transmission of COVID-19 by destroying any viruses that make it through the mask, that would inevitably enter the person's respiratory tract.

The data also shows that the masks are effective at absorbing volatile organic compounds (VOCs) that have been proven to be harmful to the human nervous system, with some even been proven to cause cancer. This provides an additional benefit to the graphene membrane face masks and presents a solution not just to preventing the transmission of COVID-19 but improving health in general by preventing airborne bacteria, viruses, and VOCs from entering the body.

Since the beginning of the global pandemic, many strategies have been implemented to prevent the spread of the virus. Some of which will remain in the future, such as the mask, which is likely to continue to be important to wear in crowded and indoor environments. Once

the COVID-19 pandemic has been resolved, it is likely that masks will continue to play an important role in our lives, given the mounting data that has come out of the pandemic which has demonstrated their efficacy at preventing the spread of bacteria and viruses in general, not just COVID-19.

To prevent another similar pandemic, face masks may remain commonplace. It is important that the masks available to the public are the most effective they can be. Nanomatrix Materials' innovation will likely lead the way in face mask technology.

Read the [original article](#) on AZoNano.